Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR (DRAFT PERMIT) NO. F-05-016
HUISH DETERGENTS INC.
385 SOUTHWOOD COURT, BOWLING GREEN, KY 42101
MAY 13, 2005
MAY HONG, REVIEWER

SOURCE I.D. #: 021-227-00100
SOURCE A.I. #: 4117
ACTIVITY #: APE20040001

SOURCE DESCRIPTION:

Huish Detergents Incorporated has applied for a renewal to their conditional major permit to operate a detergent manufacturing plant in Bowling Green, Kentucky. This detergent manufacturing plant produces detergents and other laundry related products. Some examples of the products manufactured are liquid laundry detergents, different grades of laundry detergent powders and liquid dish washing detergents. They also have blow molding and injection molding equipment to manufacture plastic bottles and pour spouts.

Huish Detergents has the potential to be a major source for particulate matter less than 10 microns (PM10) emissions (100 tons per year (TPY)). A federally enforceable state operating permit under 401 KAR 52:030 will limit the emissions of the source below the major source thresholds. This is done with the use of control equipment with efficiencies of 98% and higher, as well as limiting the production rate of the equipment.

The plant operations can be categorized into three different categories – the powders process, the liquid process area I, and the liquid process area II. In the liquid process, different combinations of the raw materials are mixed in eight different kinds of mixers to produce different kinds of liquid products. Liquids area I has three pre-mixers and five mixers, while liquids area II has three pre-mixers and three mixers. In the powder process, the products are spray dried before being mixed with enzymes, perfume, and other additives and sent to packaging lines.

The raw materials are stored in tanks connected with baghouses and bin vents. Many pieces of equipment have pick up points and vent into the atmosphere through a common baghouse. The use of the control equipment is important in keeping the plant under the major source threshold for particulate matter (PT). There is a combined total of thirty-five baghouses, bin vents and scrubber in the facility. There are also a total of four natural gas burning boilers in the facility.

The finished products from both the liquid process and powder process are stored in finished product storage tanks and then, packaged and boxed on site. The finished product storage tanks as well as all the tanks in the facility do not hold any petroleum liquids and the material stored in them have very low vapor pressures. Therefore, these tanks are listed as insignificant activities.

COMMENTS:

Type of control and efficiency:

The complete list of control equipment used in the facility is as follow:

Mikropul 96SF16 bin vent, efficiency of 99.85% - Emission Unit 05 (BV-36)

Mikropul 120SF25 bin vent, efficiency of 99.85% - Emission Unit 06 (BV-37)

Mikropul 25S-10-20 bin vent, efficiency of 99.85% - Emission Unit 07 (BV-14)
Emission Unit 08 (BV-15)
Emission Unit 09 (BV-16)
Emission Unit 10 (BV-17)
Emission Unit 11 (BV-18)
Emission Unit 12 (BV-19)
Emission Unit 13 (BV-20)
Emission Unit 26 (BV-33)
Emission Unit 33 (Liq. MES)
Emission Unit 34 (Pow. MES)
Emission Unit 35 (Pow. OQ)

Mikropul 16S-10-20 bin vent, efficiency of 99.85% - Emission Unit 14 (BV-22)
Emission Unit 15 (BV-23)
Emission Unit 16 (BV-26)
Emission Unit 17 (BV-28)
Emission Unit 18 (BV-35)
Emission Unit 24 (BV-30)
Emission Unit 28 (BV-25)
Emission Unit 32 (BV-32)

Mikropul 221S-10-20 baghouse, efficiency of 99.85% - Emission Unit 19 (DC-6)
Emission Unit 25 (DC-7)
Emission Unit 29 (DC-3)

Mikropul 320S-10-20 baghouse, efficiency of 99.85% - Emission Unit 21 (DC-1)

Mikropul 1300-8B bin vent, efficiency of 99.85% - Emission Unit 22 (BV-29)
Emission Unit 23 (BV-31)

Mikropul 660J-10-20 baghouse, efficiency of 99.85% - Emission Unit 27 (DC-2)

Mikropul 289S-10-20 baghouse, efficiency of 99.85% - Emission Unit 30 (DC-8)

Mikropul 49S-10-20 baghouse, efficiency of 99.85% - Emission Unit 30 (DC-9)

Mikropul 180S-10-20 baghouse, efficiency of 99.85% - Emission Unit 30 (DC-10 & 11)
Emission Unit 30 (DC-12 & 13)

Centriscrub-D Size 108 scrubber, efficiency of 98% - Emission Unit 20 (WS-1)

Clean gas System cyclone, efficiency of 98% - Emission Unit 20 (C-1)

Azo S-750 filter, efficiency of 99.9% - Emission Unit 34 (Powder MES)

Emission factors and their source:

Emission factors for the boilers were obtained from AP-42 Chapter 1, Table 1.4-1 and Table 1.4-2.
Emission factors for the baghouses and bin vents are based on mass balance calculations. The calculations were done using the inlet and outlet grain loading and the air flow information for each equipment.

Applicable regulations:

401 KAR 59:015, *New indirect heat exchangers*, applies to all four boilers.

40 CFR 60 Subpart Dc, *Standards of performance for small industrial-commercial-institutional steam generating units*, applies to Boiler #1 and Boiler #3.

401 KAR 59:010, *New process operations*, applies to all other emission points (EP05 to EP35)

Comments:

Emission points omitted: In the previous permit F-96-007 (Revision 5), many of the storage tanks in the facility were identified as emission points. Some of these tanks only store water for the detergent manufacturing process and thus, have no emissions. They were listed in the previous permit without any regulatory requirements. In this renewal application, the company submitted emission calculations for the tanks using Tanks 4.0 program. It was determined that all the tanks are eligible as insignificant activities, having less than 5 tons per year of VOC emissions. The calculations done for the mixers and pre-mixers were also accepted as applicable for insignificant activities. Thus, these emission points are not permitted in the new permit but are listed as insignificant activities.

EMISSION AND OPERATING CAPS DESCRIPTION:

In order to keep particulate matter emissions to below 90 tons per year, the facility is required to have limitations on their production rates. At the same time, a requirement to maintain and operate the air pollution control equipment is included. The control equipment has to be in use at all times that the facility is in operation.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.